

ABSTRACT

In a phase shift mask blank comprising a transparent  
5 substrate and a phase shift film thereon, after the phase  
shift film is formed on the substrate, it is surface treated  
with ozone water having an ozone concentration of at least 1  
ppm. The resulting phase shift film is of quality in that  
it experiences minimized changes of phase difference and  
10 transmittance upon immersion in chemical liquid during  
subsequent mask cleaning step or the like.